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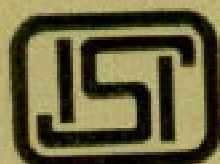


IS : 7656 - 1975

## *Indian Standard*

# CODE OF PRACTICE FOR CURING AND PRESERVATION OF CATTLE HIDES AND GOAT AND SHEEP SKINS BY WET SALTING METHOD

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# Indian Standard

## CODE OF PRACTICE FOR CURING AND PRESERVATION OF CATTLE HIDES AND GOAT AND SHEEP SKINS BY WET SALTING METHOD

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# *Indian Standard*

## CODE OF PRACTICE FOR CURING AND PRESERVATION OF CATTLE HIDES AND GOAT AND SHEEP SKINS BY WET SALTING METHOD

### 0. FOREWORD

**0.1** This Indian Standard was adopted by the Indian Standards Institution on 26 May 1975, after the draft finalized by the Leather Sectional Committee had been approved by the Chemical Division Council.

**0.2** Raw hides and skins in India deteriorate in quality due to different antimortem and postmortem defects. Curing is one of the postmortem treatments which may influence the quality of the hides and skins to a considerable extent. Most of the cattle hides available in India are obtained from dead animals. Even all the slaughtered hides and skins are not obtained from recognized slaughter houses. A delay in cure, as well as inadequate cure encourages the autolytic enzymatic action and bacterial action in hides and skins. In a tropical country like India, a delay in cure or an inadequate cure often leads to putrefactive changes in hides and skins due to autolytic and bacterial enzymes.

**0.3** Curing methods followed in different parts of India vary to a great extent and in certain cases the quality of cure is very poor. To upgrade the quality of Indian hides and skins, methods of curing and preservation are also to be improved.

**0.4** Realizing the key role played by hides and skins in leather industry, the Sectional Committee felt it necessary to formulate this Indian Standard code of practice. This would safeguard the quality of hides and skins prior to soaking and would act as a guide to concerned merchants, collectors, slaughter houses, carcass recovery centres and other curers.

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### 1. SCOPE

**1.1** This standard lays down code of practice for curing and preservation of cattle hides ( both cow and buffalo ) and goat and sheep skins.

**1.1.1** It is applicable to all hides and skins obtained either from slaughtered or fallen animals and is restricted to the wet salting method of curing.

## 2. TERMINOLOGY

**2.1** For the purpose of this standard, the definitions given in IS : 1640-1960\* shall apply.

## 3. CURING DEFECTS IN WET SALTED HIDES AND SKINS

**3.1** Curing defects in hides and skins may be caused by bacterial action, chemical impurities present in salt and faulty curing process.

**3.1.1 Bacterial Action** — Bacterial damage to hides and skins may occur either before or after curing. Because of the delay in curing, bacterial and autolytic enzymatic action in the hide may become rapid leading to serious defects like hair slip, loose structure, greasy patches, grain damage or even holes due to complete disintegration of hide or skin. Common salt due to its bacteriostatic activity can preserve the hides well for certain period after which the putrefactive organisms gain tolerance to high salt concentration and then cause damage to cured hides and skins. Cured stock is also degraded in quality due to the development of 'red-heat' or what may better be termed as 'red stain' on the hide or skin surface, caused by the chromogenic halophilic bacteria generally present in marine and solar evaporated salt.

**3.1.2 Impurities Present in Common Salt** — The chemical impurities in curing salt may result in a number of defects, such as 'salt stain', 'salt stippen', 'salt pits', 'iron stains', etc. 'Salt stain' may be of different types, namely (a) flesh side salt stain, (b) grain side salt stain and (c) circular salt stain. These are caused by the calcium salt (present as impurity) which is deposited as calcium phosphate in the fibre structure of the hide or skin. Curing salt containing magnesium salt as impurity is responsible for stippen which first develops as magnesium ammonium phosphate, but after tanning this is converted into calcium sulphate. Traces of iron present in common salt as impurity often produces stain on limed pelt. Presence of calcium and magnesium salts makes the curing salt more hygroscopic and less suitable for curing. Magnesium sulphate also encourages the growth of halophilic organisms responsible for red stain.

**3.1.2.1** The grain size of salt may influence the rate of curing. Neither a very fine grain nor a coarse grain salt is suitable for curing. Fine grain salt prevents further penetration of salt by caking on the hide surface. On the other hand, a coarse grain salt is dissolved rather slowly resulting in slow curing action and may also produce pits on hide surface when kept in the big piles.

**3.1.3 Faulty Operational Techniques** — The quality of cure may also be affected due to careless handling of the hides and skins and lack of technical knowledge. On some occasions, hides and skins after flaying are left in the

\*Glossary of terms relating to hides, skins and leather.



sun where they may be partially dried in the exposed areas. Curing of such hides will not be uniform as salt absorption in the dried areas will be inadequate. Blood and manure present in the hide or skin should be washed well before curing, otherwise they may retard dehydration and also encourage bacterial degradation of the hide or skin during storage. Presence of adhering fat and flesh layer on the hides appreciably delays salt absorption and dehydration.

**3.1.3.1** To overcome the defects of microbial nature, hides and skins are to be cured after flaying without much delay. Also antiseptics are to be used in admixture with curing salt or applied to the hides and skins in the form of spray, prior to curing.

**3.1.3.2** Defects of chemical nature can, best be avoided by using a clean, good quality salt conforming to IS : 593-1964\*.

**3.1.3.3** Other defects mentioned above can be dealt with by following proper techniques for curing and by careful handling of the hides and skins.

#### **4. PRECAUTIONS TO AVOID DEFECTS AND TO IMPROVE QUALITY**

**4.1** Wet salting is the most common method of curing hides and skins which is followed in India and in most of the other countries. In this process common salt in adequate quantity is applied on the flesh side of the hide or skin. Curing and preservation with common salt is mainly due to the limited bacteriostatic property and partial dehydrating action of the salt. But the efficacy of the process depends on a number of the following factors which are to be carefully controlled.

**4.1.1 *Trimming of the Hide or Skin*** — After flaying, unwanted parts of the hide or skin for example, snout, eyes, ears, teats of the mammary glands and scrotum sheath, are to be trimmed off.

**4.1.2 *Defleshing and Defatting*** — Often thick layers of flesh and fat are retained on the hide or skin. These adhering flesh and fat layers are to be removed before curing.

**4.1.3 *Washing and Cleaning*** — Slaughtered hides and skins in India are highly contaminated with blood and manure. So washing and cleaning of the hides and skins with plain water and then draining out the excess water before salting is a good practice.

**4.1.4 *Delay in Cure*** — A delay in cure may appreciably affect the quality of hides and skins. Deterioration is very much progressive when the staling period exceeds 20 to 24 hours and the existing room temperature is higher.

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\*Specification for common salt for hide curing ( wet salting ) ( revised ).

Goat and sheep skins or calf skin are affected quicker than thicker hides. The problem is more acute in case of fallen hides which are some times collected and cured even after 48 hours of death of the animal. Delay in cure also encourages 'salt stain' and 'salt stippen' formation. Skins and hides should, therefore, be cured within 6 to 8 hours of flaying/death of the animal.

#### **4.1.5 *Quality of the Salt***

**4.1.5.1** A good quality salt conforming to IS : 593-1964\* should be used for curing.

**4.1.5.2** The ideal grain size of the salt for curing hides is 2 to 3 mm (recommended by International Council of Tanners). For skins, however, a mixture of medium grain and fine grain salt (0.4 to 1.50 mm grain size) is considered preferable.

**4.1.5.3** Salt once used for curing and preservation of hides and skins should not be reused as it may directly affect the quality of cure.

**4.1.6 *Quantity of Salt***—The minimum amount of salt required for effective curing of cattle hides is about 35 percent and for calf, goat and sheep skins 40 to 45 percent, calculated on raw hide or skin weight.

**4.1.7 *Use of Antiseptics in Curing***—Wet salted hides and skins cured properly with good quality salt are preserved well for a considerable period. If it is desired to preserve the hides for a longer period (more than 2½ months) or to transport them to a distant place, it is necessary to use suitable preservative during curing. Preservatives like zinc chloride, sodium pentachlorophenate or trichlorophenate, orthophenyl-phenol, parachloro-metacresol, etc, in the proportion of 0.5 to 1.0 percent on salt weight (depending on the period of storage required) are found quite effective as additives to curing salt. Preservatives in the form of a solution or suspension may also be applied on the flesh side of the hides and skins by spraying (0.175 to 0.35 percent on hide weight or 0.20 to 0.45 percent on skin weight) and then followed by salting.

**4.1.8 *Application of Salt***—Hides should be placed flesh side up over a wooden lattice platform or on a slanting cemented floor. The amount of salt required (that is 35 percent on green weight) is calculated and 50 to 60 percent of the salt is taken first and applied uniformly on the flesh surface. When the salt is considerably absorbed by the hide (time may vary from 6 hours to overnight depending on the atmospheric humidity, etc), the rest of the salt may be applied in another one or two instalments.

**4.1.8.1** The same procedure may be followed in case of skins. In India, goat and sheep skins are flayed in the form of bags (that is not

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\*Specification for common salt for hide-curing (wet salting) (*revised*).

opened up in the belly and fore legs as in cattle hide ). Goat and sheep skins are cured in the bag form but it would be a better practice to cut them open before salting.

**4.1.9 Curing in Pile** — Cattle hides may be cured in piles, placing one hide above the other flesh side up. Calf, goat and sheep skins may be cured in piles flesh to flesh.

**4.1.10 Period of Cure** — After salting, the hides and skins should remain in piles for at least 3 to 7 days, depending on the thickness to attain more uniform distribution of salt in different layers of the hide or skin. The hides or skins are then ready for packaging, storage or transport.

**4.1.11 Resalting** — In case the primary salting of the hides and skins is not properly done as is often the case at the village level, resalting of the stock should be done immediately after receiving them. The salt on the flesh surface is to be brushed off or removed by washing, if necessary and the hide or skins is then resalted with salt with which a preservative has already been mixed or is sprayed with antiseptics prior to salting.

## 5. CONDITIONS OF STORAGE

**5.1** During storage hides are to be kept in piles over lattice platforms. If the pile is high enough, it should be kept under observation so that the temperature inside the pile does not increase. If there is a tendency for increase in temperature then the pile is to be broken and made into a fresh one or the hides may be taken for processing. In summer months the height of the pile may better be restricted to 1 metre.

**5.2** Cured hides and skins may be preserved for a longer period in good condition if temperature and humidity of the store house are maintained at 6 to 8°C and 70 to 80 percent relative humidity. A lower temperature delays bacterial growth and helps better preservation. From the point of view of both microbial deterioration and weight shrinkage, a relative humidity of about 75 percent is most suitable.

# INDIAN STANDARDS

## ON

### LEATHER

IS:

- 575-1956 Chrome belt lace leather
- 576-1954 Glazed kid for shoe uppers
- 577-1954 Upholstery leather
- 578-1971 Full-chrome upper leather ( *second revision* )
- 579 ( Part I )-1973 Sole leather ( *second revision* )
- 579 ( Part II )-1973 Water-resistant vegetable tanned sole leather ( *second revision* )
- 580-1973 Harness leather ( *second revision* )
- 581-1962 Vegetable tanned hydraulic leather ( *revised* )
- 582-1970 Methods of chemical testing of leather ( *first revision* )
- 622-1956 Russet leather
- 1016-1956 Methods of sampling and test for oil tanned leathers
- 1017-1966 Chamois leather ( *first revision* )
- 1636-1960 Chrome waxed sole leather
- 1637-1960 Cycle saddle leather
- 1639-1960 East India tanned kips and skins
- 1640-1960 Glossary of terms relating to hides, skins and leather
- 2276-1962 Vegetable and aluminium tanned snakeskins
- 2545-1963 Vegetable tanned lizardskins
- 2698-1964 Leather roller skins
- 2954-1964 Vegetable tanned leather for belting
- 2960-1964 Bookbinding leather
- 2961-1973 Chrome retan upper leather ( *revised* )
- 3020-1964 Leathers for oil seals and washers
- 3840-1966 Lining leathers
- 3946-1966 Leather for leg-guard
- 3982-1966 Sheepskin leather for orthopaedic linings
- 3983-1966 Goatskin parchment for orthopaedic purposes
- 3985-1966 Leather for rugby ball
- 4102-1967 Leather for shuttlecock caps
- 4191-1967 Leather for volleyball
- 4207-1967 Leather for football
- 4553-1967 Leather for cricket ball
- 5024-1968 Buffalo-butt leather for knee bushings
- 5034-1968 Chrome goatskin in wet blue condition
- 5570-1969 Pickled goatskins
- 5597-1970 Leather for boxing gloves
- 5609-1970 Leather for hockey ball
- 5677-1970 Shoe upper leather for direct moulding processes
- 5712-1970 Slickers for leather industry
- 5866-1970 Chrome leather for high altitude gloves
- 5867-1970 Leatherboards for insoles
- 5868-1969 Method of sampling for leather
- 5914-1970 Methods of physical testing of leather
- 6153-1971 Protective leather clothing
- 6191-1971 Methods of microbiological colour fastness and microscopical tests for leather
- 6351-1971 Unhairing and scudding knife for leather industry
- 6369-1971 Flething knife for leather industry
- 7656-1975 Code of practice for curing and preservation of cattle hides and goat and sheep skins by wet salting method

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Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110001

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